

## **REMARKS**

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-25 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

### **Drawing**

Applicants note with appreciation the approval of the proposed Drawing Correction filed on December 20, 2002. By way of the present Amendment, Applicants are submitting herewith an amended sheet including Figures 3 and 4 including those drawing corrections.

### **Rejection Under 35 U.S.C. § 102**

Claims 1-25 stand rejected under 35 U.S.C. § 102 as being anticipated by Redmond et al. (U.S. Patent No. 5,913,955). This rejection is respectfully traversed.

The Examiner states that Redmond et al. shows a control unit and converting means which are connectable to the control unit and comprise a vibration sensor and an actuator with the actuator comprising an active element which converts an AC voltage supplied by the control unit to the actuator into dimensional changes. The Examiner also states that the active element is adapted to be embedded in the body of the tool holder so that dimensional changes impart turning moments to the body of the tool holder. Applicants disagree with the Examiner's understanding of this reference. The Examiner states that the active element is "embedded". Applicants are attaching hereto definitions of the term "embedded" from two different dictionaries. It is clear from these definitions that this term

means that the element is not merely placed within or received within an opening, but rather that it is firmly fixed therein and surrounded by material. In the Redmond device, the active is merely placed within an opening in the larger body. This differs from the present invention where the active element is completely covered in material so that it is completely embedded in the body of the tool holder. This has now been emphasized in claims 1, 9 and 11 where the active element is not only said to be embedded in the body of the tool holder, but also that it is covered. This is described on page 8, line 1 of the specification.

This feature is important because the covering helps protect the active element from damage in use. In Redmond, the activators are provided in recesses so big that there is a lot of free space which disposes them to hot chips, cutting fluid and other foreign matter if a piezoelectric activator is fully exposed to its surroundings, such as the cutting fluid, it could easily be destroyed in a short time since the cutting fluid is highly corrosive. It is also possible that the spaces around the activators can be clogged or filled with foreign matter preventing the compressive movements of the spaces and the activators. Thus, Applicants submit that Redmond does not show an embedment and cannot operate in the same fashion as the present invention. For these reasons, Applicants submit that independent claims 1, 9 and 11 as well as dependent claims 2, 3, 6-8, 10, 12-14 and 17-25 are allowable over this reference.

Applicants have also rewritten claims 4 and 15 in independent form including the limitations of claim 1 as previously presented. These claims relate to the mounting of the tool holder so that the active element is at least partly within the recess. This feature relates to the embodiment of Figure 5 and is described on pages 8 and 9. This arrangement is important since it offers the best vibration control. By having the active

element engage the tool holder, which is rigidly fastened, vibration control is maximized. If, instead, the active element is located away from the tool holder, as is shown in Redmond, the portion of the tool holder between the active element and the clamping point of the tool holder would tend to flex or vibrate under the influence of both the vibrations generated by the cutting and the vibrations generated by the active element. Thus, an important advantage is achieved by mounting the active element in this fashion. This may also be viewed as having the active element at a location where the bending moments and stresses generated by the cutting action are at a maximum. This maximum is located where the tool holder enters the recess or within the recess. Applicants submit that Redmond et al. does not show this feature, and accordingly, claims 4 and 15, which have been rewritten in independent form and dependent claims 5 and 16 which depend therefrom are also allowable.

### **Rejection Under 35 U.S.C. § 103**

Claim 8 stands rejected under 35 U.S.C. § 103 as being obvious over Redmond in view of Lazarus et al. (U.S. Patent No. 5,687,462). This rejection is respectfully traversed.

The Examiner cites the Lazarus et al. reference to show a piezoceramic element. However, Applicants submit that even if the secondary reference does teach such a piezoceramic element, it still does not aid the primary reference in overcoming its deficiencies as noted above. In view of this, Applicants submit that claim 8 is allowable as well.

## Conclusion

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, reconsideration of the rejections and allowance of all the claims are respectfully requested.


Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert F. Gnuse (Reg. No. 27,295) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants respectfully petition for a three (3) month extension of time for filing a response in connection with the present application and the required fee of \$465 is being filed concurrently herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By   
Joe McKinney Muncy, #32,334

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000

 KM/RFG/ags

Attachment(s): Dictionary definitions - two (2)  
Figures 3 and 4